

UCMERCED
Stem Cell Instrumentation Foundry

Flow Cytometry and Cell Culture
Emergency Preparedness Policy and Procedures

Rev 2; 2/19/2020
First Established -10/14/2019
David Gravano

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Purpose

This document provides policy and procedures related to emergency preparedness, including urgent actions, extended emergency/power failure procedures, and recovery procedures.

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1. Contact List and Notification Policy

<u>Name</u>	<u>Role</u>	<u>Email</u>	<u>Cell Phone</u>
David Gravano*	Technical Director of Cytometry	dgravano@ucmerced.edu	209-285-5726
Anand Gadre	Executive Director	agadre@ucmerced.edu	209-658-3879
Parveen Kumar	Technical Director of Cleanroom	pkumar22@ucmerced.edu	513-504-7674

Emergency Notification Policy: For emergencies pertinent to the flow cytometry and cell culture resources, David Gravano will be responsible for contacting each lab member by phone or text to confirm their safety and provide updates. If cell phone signal is unavailable, contact will be made via email.

Any emergency/power failure updates will be sent to all users via the SCIF Cytometry Listserv: sciffowcytometry@lists.ucmerced.edu



***Main point of contact**

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2. Major Equipment Details

	BD FACS ARIA III Vendor: BD Biosciences Location(s): S&E 1 153E Serial #(s): P28200190 UCM Capital Equipment Tag#(s): 110100007 Date Purchased/Mfd(s): 2/1/2011 Service Provider Contact info: <table><tr><td>Cytek Biosciences</td><td>510-432-3758</td><td>cytekbio@cytekbio.com</td></tr></table> Available on backup power? Yes	Cytek Biosciences	510-432-3758	cytekbio@cytekbio.com
Cytek Biosciences	510-432-3758	cytekbio@cytekbio.com		
	BD FACS ARIA IIu Vendor: BD Biosciences Location(s): S&E 1 153A Serial #(s): P0236 UCM Capital Equipment Tag#(s): 044000798 Date Purchased/Mfd(s): 1/1/2004 Service Provider Contact info: <table><tr><td>Cytek Biosciences</td><td>510-432-3758</td><td>cytekbio@cytekbio.com</td></tr></table> Available on backup power? No	Cytek Biosciences	510-432-3758	cytekbio@cytekbio.com
Cytek Biosciences	510-432-3758	cytekbio@cytekbio.com		
	Aria IIu SORP Sorter Vendor: BD Biosciences Location(s): S&E 1 379 Serial #(s): P90600003 UCM Capital Equipment Tag#(s): 180100156 Date Purchased/Mfd(s): 1/1/2006 Service Provider Contact info: <table><tr><td>Cytek Biosciences</td><td>510-432-3758</td><td>cytekbio@cytekbio.com</td></tr></table> Available on backup power? No	Cytek Biosciences	510-432-3758	cytekbio@cytekbio.com
Cytek Biosciences	510-432-3758	cytekbio@cytekbio.com		

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	BD LSR II Vendor: BD Biosciences Location(s): S&E 1 153A Serial #(s): H47100147 UCM Capital Equipment Tag#(s): 080000059 Date Purchased/Mfd(s): 5/1/2008 Service Provider Contact info: <table><tr><td>Cytek Biosciences</td><td>510-432-3758</td><td>cytekbio@cytekbio.com</td></tr></table> Available on backup power? No	Cytek Biosciences	510-432-3758	cytekbio@cytekbio.com				
Cytek Biosciences	510-432-3758	cytekbio@cytekbio.com						
	LabGuard Biosafety Cabinets Vendor: Nuaire Location(s): S&E 1 153D and 153C Serial #(s): <table><tr><td>138611070610</td></tr><tr><td>138590070110</td></tr><tr><td>138591070110</td></tr><tr><td>138630070610</td></tr></table> UCM Capital Equipment Tag#(s): N/A Date Purchased/Mfd(s): 2010 Service Provider Contact info: <table><tr><td>Technical Safety Services</td><td>562-694-3626</td><td>mislas@techsafety.com</td></tr></table> Available on backup power? No	138611070610	138590070110	138591070110	138630070610	Technical Safety Services	562-694-3626	mislas@techsafety.com
138611070610								
138590070110								
138591070110								
138630070610								
Technical Safety Services	562-694-3626	mislas@techsafety.com						

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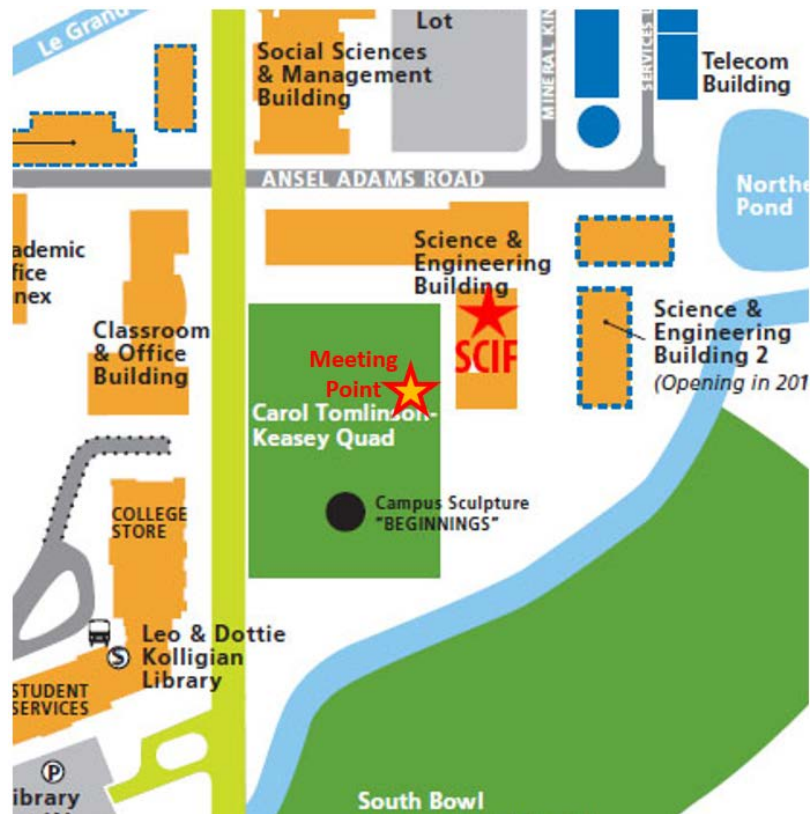
	Symphony Stacked Incubator		
	Vendor: VWR		
	Location(s): S&E 1 153 D and 153C		
	Serial #(s):		
	316812-137 & 316812-135		
	316812-138 & 316812-134		
	UCM Capital Equipment Tag#(s):		
	100100098 & 100100099		
	100100100 & 100100101		
	Date Purchased/Mfd(s):		
316812-137			
07/14/10			
Service Provider Contact info:			
VWR Technical Support	1 (888) 897- 5463	TechnicalPro ductSupport NA@vwr.co m	
Available on backup power?			
Yes			

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3. Fire/Natural Disaster Plan

In the event of a sudden natural disaster (eg. earthquake) or fire alarm:

- Users and staff will perform the steps below, if in the process of using instrumentation, and will immediately exit the lab
 - Any running cytometers will immediately need to be put on standby and stream turned off (for cell sorters) with the only exception being through remote instrument monitoring via TeamViewer.
 - TeamViewer can be used to remotely monitor a continuing sort in the event of a fire alarm if it can be set up immediately upon the fire alarm sounding.
 - The user must constantly monitor the equipment through TeamViewer while the instrument is in operation.
 - All samples in Biosafety cabinets must be removed and placed in the appropriate incubator or containment device
 - Other equipment in use at the time of the fire alarm may be left on, but in standby mode.
- All lab personnel and users must exit the lab and meet at the designated meeting spot, in the Carol Tomlinson Keasey Quad at the tree nearest room S&E1 172 (see map).
- All lab personnel must be accounted for in accordance with the **Contact List and Notification Policy**



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• 4. Power Failure Plan

In the event of a sudden power failure:

- Facility staff will turn off all cytometers. Additionally, staff will unplug cytometers that are not connected to a power conditioner (LSRII and ArialII have power conditioners. ArialI instruments do not).
- Immediately contain any biohazardous materials being worked on in the biosafety cabinet (eg. cap tubes, seal culture flasks, etc). Store them in an incubator or appropriate secondary container until power is restored.
- If power failure is prolonged, the ArialII can be run on backup power to allow completion of a user's experiment.
 - ArialII – the house compressed air will cease to function without power, so while the instrument is off, toggle the auxiliary air supply to “off” on the fluidics cart to engage the internal air compressor. Restart the system.
 - Complete the experiment as quickly as possible and shut down the system.
 - No new experiments can be initiated until regular power is restored.

In the event of a long-term planned power outage:

- Cytometers:
 - Unplug all cytometers
 - No experiments will be allowed to occur for the duration of the outage
 - SCIF cytometry operations will shut down for the duration of the outage
- Cell culture:
 - Incubators on backup power will continue to function
 - Biosafety cabinets will be unavailable during power outages
 - For planned outages lasting longer than backup power availability, users should freeze their cells in liquid nitrogen
- Histology
 - All histology operations will shut down for the duration of the outage.

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5. Biohazard Exposure Plan

In the event of a Biohazard emergency, follow the UC Merced EH&S procedure below and contact EH&S immediately for guidance.

- Information below is from the UC Merced Biosafety Manual – updated Oct 2015
- https://ehs.ucmerced.edu/sites/ehs.ucmerced.edu/files/documents/biological-safety/uc_merced_biosafety_manual_october_2015.pdf

Emergency Procedures

1. Accidents

All biohazard laboratories must complete a Laboratory Safety Plan Supplement (LSPS). The laboratory specific LSPS should provide emergency response information to lab members. The emergency response information must take into consideration the use of radioactive materials and chemicals, if applicable. The following items should be noted for the type of biohazardous agent used in the laboratory:

- a. First, attend to any injured personnel. Call 9-911 from a campus landline or 911 from a cell phone for emergency assistance, and inform responders of biohazards that may be a threat.
- b. For spills in BL-2 laboratories, evacuate the room and close the doors.
- c. Wait 30 minutes before reentering to allow droplets and aerosols to settle.
- d. After evacuating the area, wait to assist emergency responders.
- e. Notify EH&S during work hours at 228-4639 or 228-2347 about a spill outside of containment of a biohazardous agent.

2. Exposures

- a. Clean exposed skin/needle stick area with soap and water for 15 minutes. Do not use soap if it is an eye exposure.
- b. Report exposure to supervisor, and seek medical treatment as needed.
- c. Report the exposure to the EH&S biosafety officer at 228-4639 or 228-2347 for a review of laboratory protocols and procedures.

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3. Biohazard Spill

The following procedures are provided as a guideline to biohazardous spill cleanup. Appropriate lab coats, gloves and other PPE should be worn in the laboratory at all times.

a. Inside the Biosafety Cabinet (BSC)

- 1) Apply appropriate disinfectant and allow a minimum of 20 minutes contact time while allowing the cabinet to run.
- 2) Wipe up spillage with disposable, disinfectant-soaked paper towels.
- 3) Wipe the walls, work surface and any equipment in the cabinet with disinfectant-soaked paper towels.
- 4) Discard contaminated disposable materials in appropriate biohazardous waste container(s) and autoclave before discarding as biohazardous waste.
- 5) Place contaminated reusable items in separate biohazard bags and autoclavable pans with lids before autoclaving and cleanup.
- 6) Expose non-autoclavable materials to disinfectant for a minimum of 20 minutes before removing them from the BSC.
- 7) Remove protective clothing used during cleanup and place in a biohazard bag for autoclaving.
- 8) Run the cabinet for a minimum of 10 minutes after cleanup before resuming work or turning off the cabinet.

b. In the lab and outside the BSC

- 1) If the organisms are transmitted through aerosols, WITHOUT FIRST INHALING, HOLD YOUR BREATH AND LEAVE THE ROOM IMMEDIATELY. Wait at least 30 minutes for droplets and aerosols to settle before reentering spill area.
- 2) Remove any contaminated clothing and place in biohazard bag to be autoclaved.
- 3) Wear a disposable gown, safety glasses and gloves.
- 4) Initiate cleanup with disinfectant as follows:
 - a. Soak paper towels in disinfectant and place over the spill.
 - b. Encircle the spill with additional disinfectant, being careful to minimize aerosolization while assuring adequate contact.
 - c. Decontaminate all items within the spill area.
 - d. Allow a minimum of 20 minutes contact time to ensure germicidal action of disinfectant, and wipe up the spill with more paper towels.
 - e. Clean the spill area with fresh towels and disinfectant.

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- f. Place disposable contaminated spill materials in red biohazardous waste bags for autoclaving.
 - g. Place contaminated reusable items in biohazard bags or autoclavable pans with lids before autoclaving and cleanup.
- c. Outside lab, during transport
 - 1) Transport biohazardous material in an unbreakable, well-sealed primary container placed inside of a second unbreakable lidded container labeled with the biohazard symbol. The container can be a cooler, plastic pan or pail.
 - 2) Should a spill occur in a public area, do not attempt to clean it up without appropriate PPE.
 - 3) As an interim measure, wear gloves and place paper towels, preferably soaked in disinfectant, directly on spilled materials to prevent spread of contamination. To assure adequate contact, surround the spill with disinfectant, if available, taking care to minimize aerosols. Notify EH&S immediately.

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6. Recovery Plan

Following a power outage, power surge, or when any equipment damage may have occurred, perform the following assessments

- Check all rooms for damage, being alert to any issues with electric, gas, water, fire alarm, and fire sprinkler systems.
- All cytometers
 - Check house compressed air lines to FACS Arias and ensure they are supplying air at 90-100PSI
 - Put in FM Help request if air is off
 - Start all cytometers and perform CS&T check to test all lasers and detectors
 - Perform accudrop calibration to ensure proper sort function for FACS Aria instruments
- Cell culture
 - Turn on all biosafety cabinets and check self-diagnostics for proper air flow
 - Check incubator self-diagnostics for temperature and CO2 levels
 - Perform Fyrite test of incubators to ensure proper CO2 calibration
 - Check freezer and refrigerators for proper function.
- Other electronics
 - Restart all computer systems and note any issues
- Contact service providers, as necessary, if issues are noted.